Aruba 800 Series™ Wireless LAN Switch

Installation Guide

ARUBA

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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EU - Class A

This product complies with EN55022 Class A and EN55024 standards.

Safety

Lithium Battery Notice

This product contains a lithium battery which is replaceable only by a trained technician.

CAUTION—The lithium battery may explode if it is incorrectly replaced. A trained technician should replace the battery with the same or equivalent type battery recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Laser Notice

Model HW-800-CHAS-SPOE-SX uses a laser transceiver on the fiber-optic uplink port.

CAUTION—Use of controls or adjustments of performance or procedures other than those specified in this manual may result in hazardous radiation exposure.

This product complies with 21 CFR Chapter 1, Subchapter J, Part 1040.10, and IEC 60825-1: 1993, A1: 1997, A2: 2001, IEC 60825-2: 2000.

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Preface

This preface includes the following information:

- An overview of the sections in this manual
- A list of related documentation for further reading
- A key to the various text conventions used throughout this manual
- Aruba Wireless Networks support and service information

Overview of this Manual

This manual is for trained technicians responsible for installing the Aruba 800 Series Mobility Controller. This manual is organized as follows:

Chapter 1, "System Overview"—Describes the main features of this product, including physical diagrams.

Chapter 2, "Installing the Chassis"—Instructions for mounting the chassis and attaching power.

Chapter 3, "Verifying the Installation"—Instructions for performing initial power-on tests.

Appendix A, "Power Management"—Worksheet for determining system power load.

Appendix B, "Ports"—Describes interface, cable, and adapter specifications for system ports.

Appendix C, "Specifications"—Describes the system's size, weight, storage and operating environment, and certifications for electromagnetic compliance and safety.

Related Documents

The following items are part of the complete documentation for the Aruba system:

- *Aruba 800 Mobility Controller Installation Guide* (this manual)
- *Aruba ArubaOS User Guide*
- Aruba AP installation guide

Text Conventions

The following conventions are used throughout this manual to emphasize important concepts:

TABLE P-1 Text Conventions

Type Style	Description
Italics	This style is used to emphasize important terms and to mark the titles of books.
`System items`	This fixed-width font depicts the following: • Sample screen output • System prompts • Filenames, software devices, and certain commands when mentioned in the text
`Commands`	In the command examples, this bold font depicts text that the user must type exactly as shown.
<Arguments>	In the command examples, italicized text within angle brackets represents items that the user should replace with information appropriate to their specific situation. For example: # **send** *<text message>* In this example, the user would type “send” at the system prompt exactly as shown, followed by the text of the message they wish to send. Do not type the angle brackets.
[Optional]	In the command examples, items enclosed in brackets are optional. Do not type the brackets.
{ Item A | Item B }	In the command examples, items within curled braces and separated by a vertical bar represent the available choices. Enter only one choice. Do not type the braces or bars.

Contacting Aruba Wireless Networks

Web Site

- Main Site http://www.arubanetworks.com
- Support http://www.arubanetworks.com/support

E-mail

- Sales sales@arubanetworks.com
- Support support@arubanetworks.com

Telephone Numbers

- Main 408-227-4500
- Fax 408-227-4550
- Sales 408-754-1201
- Support In the U.S.: 800-WI-FI-LAN (800-943-4526)
  International:408-754-1200

To the Network Manager

As with any full-featured network equipment, deploying the Aruba Wireless LAN (WLAN) solution requires a degree of planning. The process may involve multiple components as well as various individuals in your organization. As the network manager, you should become familiar with the components and deployment summary outlined in this section.

The Aruba WLAN Solution

The Aruba WLAN solution consists of three major components:

- Alcatel Wireless LAN Switch. This is an enterprise-class switch into which multiple Access Points (APs) and Air Monitors (AMs) are connected and controlled.
- Aruba Wireless Access Point. This is a next-generation wireless transceiver which functions as an AP or AM. Although third-party APs can be used with the Aruba WLAN system, the Aruba AP provides the best features and easiest integration.
- Aruba ArubaOS Switch Software. This software intelligently integrates the Mobility Controller and APs to provide load balancing, rate limiting, self healing, authentication, mobility, security, firewalls, encryption, and centralization for monitoring and upgrades.

Deployment Summary

This section outlines the various tasks involved in deploying the Aruba WLAN solution, and indicates the document where you can find appropriate instructions.

NOTE—Documents named below are included on the *Aruba Documentation Library CD-ROM.*

1 Physical installation of the Alcatel Wireless LAN Switch

Installation requires a trained technician who is experienced with handling and installing similar equipment. This phase involves the following tasks:

- Transport, unpack, and mount the switch in a suitable rack environment.
- If using a modular switch chassis, install any extra modules you may have ordered.
- Attach power and a console.
- Boot the system and perform the initial power-on test, examining the LEDs and console messages to ensure proper operation.

The *Aruba 800 Mobility Controller Installation Guide* provides the necessary instructions.

2 Initial configuration of the Alcatel Wireless LAN Switch

Configuration requires someone who understands the company's wired network and has experience with the physical and logical management and configuration of routers, switches, servers, and clients. This phase involves the following tasks:

- Use the console to perform initial configuration of the Alcatel Wireless LAN Switch.
- Attach the switch to the network.

The *Aruba Quick Start Guide* provides instructions.

3 Planning the location of access points and air monitors

This phase requires someone familiar with your wireless network deployment strategy and the features required of the Aruba WLAN solution. You can manually determine the locations for APs, or use a Web browser to access the Alcatel Wireless LAN Switch's built-in RF Plan tool and perform the following tasks:

- Define the physical site parameters.

- Determine how many access points are needed and where they should be located.
- Simulate network failures and recovery characteristics, and adjust placement if necessary.

The *Aruba ArubaOS User Guide* provides instructions.

4 Physical installation of the Aruba Wireless Access Points

This requires a trained technician. The following tasks are involved:

- Perform initial configuration of the AP.
- Mount the AP in its appointed service location.
- Attach required network cables and power.

The Aruba AP installation guides provide instructions.

5 Advanced configuration of the Alcatel Wireless LAN Switch

Again, configuration requires someone who understands the company's network and has experience managing routers, switches, servers, and clients. The following tasks are involved:

- Configure the planned network features via command line or Web interface.
- Test and debug the deployment.

The *Aruba ArubaOS Reference Guide* provides in-depth information and examples on the Alcatel Wireless LAN Switch's more advanced features.

6 Monitoring and maintenance

This requires someone experienced using various types of software tools to gather and interpret network performance information. The following tasks are involved:

- Perform remote monitor and management functions via command line or Web interface.
- Identify problems and initiate support when necessary.
- Ensure that hardware support issues are handled by a trained technician.

The *Aruba ArubaOS Reference Guide* provides instructions for collecting system health and performance information. The Aruba Mobility Controller installation guides and Aruba AP installation guides provide instructions for hardware issues.

CHAPTER 1
System Overview

The Aruba 800 Series Mobility Controller is an enterprise-class switch which connects, controls, and intelligently integrates wireless Access Points (APs) and Air Monitors (AMs) into the wired LAN.

This chapter introduces you to the Alcatel Wireless LAN Switch. It describes the general features of the system and illustrates key physical elements. Once you are familiar with the system, you can begin the installation process covered in the next chapters.

Features

This section outlines the general features of the Alcatel Wireless LAN Switch:

- Eight 10/100 Mbps Fast Ethernet (FE) ports with Serial and Power Over Ethernet (SPOE) capability.
- One 10/100/1000 Mbps Gigabit Ethernet (GE) uplink port.
- All ports automatically sense and negotiate speed, duplex, and MDI/MDX settings.
- High-speed Layer-2/Layer-3 packet forwarding.
- High-performance packet processing provides value-added wireless services such as load balancing, rate limiting, self-healing, calibration, authentication, mobility, security, firewalls, encryption, and centralized monitoring and configuration.
- 1U chassis can be mounted in a standard 19-inch network equipment rack.

- The switch firmware can be easily upgraded as future software releases are made available. You can install upgrades using TFTP.

Physical Description

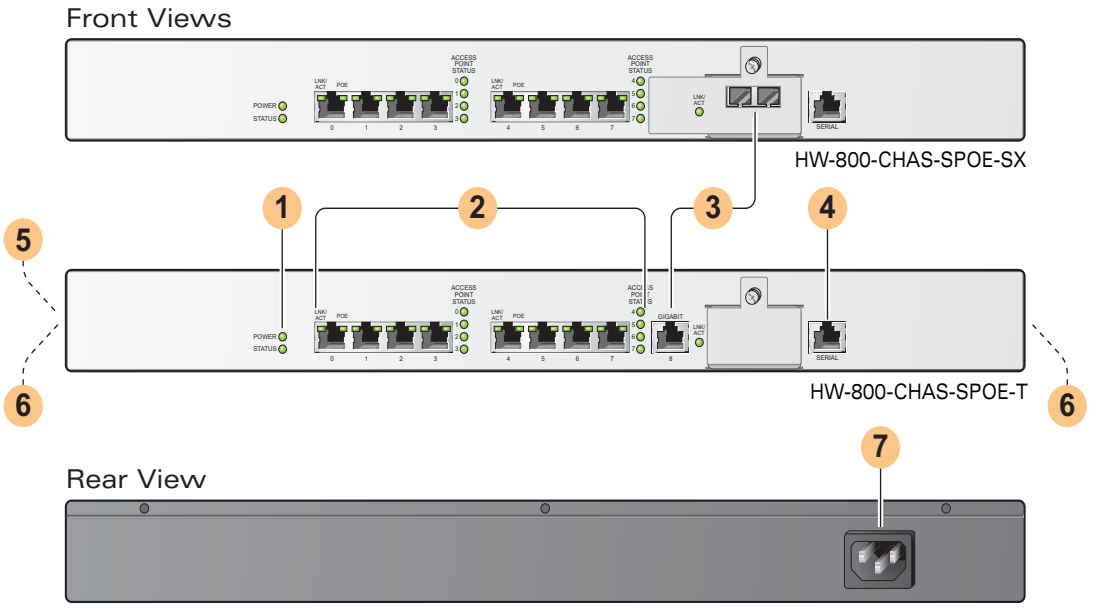


FIGURE 1-1 Aruba 800 Series Mobility Controller Systems

1 System Indicator LEDs

TABLE 1-1 System LEDs

LED	State	Description
Power	Green	Switch is receiving proper power.
	Off	Switch is powered off.
Status	Green	Switch has booted and is functioning properly.
	Off	Switch is booting, loading software, or has failed.

2 Eight FE ports

These network ports are used for connecting wireless APs, such as the Aruba Wireless Access Point, as well as wired LAN segments. The ports provide 10/100 Mbps Fast Ethernet connectivity, and in some cases, power and serial connectivity as well. See "FE Network Ports" on page 18 for port, LED, and cable specifications.

3 GE uplink port

This uplink port is used for high-speed connection to the wired LAN. The port provides 10/100/1000 Mbps Gigabit Ethernet connection. Depending on the option selected at time of purchase, one of the following interfaces is available:

- 1000BASE-T copper connector (standard model HW-800-CHAS-SPOE-T)
- 1000BASE-SX fiber-optic connector (optional model HW-800-CHAS-SPOE-SX)

CAUTION—This model uses a laser transceiver on the fiber-optic uplink port. Use of controls or adjustments of performance or procedures other than those specified herein may result in hazardous radiation exposure.

See "GE Uplink Port" on page 22 for port, LED, and cable specifications.

NOTE—The Gigabit interface is not user-replaceable. Do not remove the port cover plate.

4 Serial Console port

This port is for connecting a local management console. It is required to access the text-based Command-Line Interface (CLI) for initial configuration of the Alcatel Wireless LAN Switch. The CLI can also be used for switch management and troubleshooting.

The port accepts an RS-232 serial cable, an RJ-45 male connector. See "Serial Console Port" on page 25 for more port and cable specifications.

See the *Aruba ArubaOS User's Guide* for information on using the features available through this port.

5 Fans/heat exhaust (on side)

Three independent fans promote proper air circulation for cooling the Alcatel Wireless LAN Switch.

During operation, the air vents on the left and right sides of the chassis must remain unobstructed by cables or mounting equipment. For proper air circulation, leave at least 10 cm (4 inches) of clearance on the left and right of the chassis.

6 Holes for attaching rack mounting brackets (on side)

7 Power Input Socket (on back)

The power input socket on the back of the switch accepts a power cord with a standard IEC320 connector. For proper safety and performance, the power cord must be rated to 10 A and conform to grounded electrical standards in the country where the product is operated.

The Aruba 800-04

The Aruba 800-04 is identical to the Aruba 800 except that it is licensed to support four Access Points only. All other features and functions are the same as the Aruba 800.

The Aruba 800-04 software license can be upgraded to an Aruba 800 and able to support up to 16 Access Points. For information on upgrading the Aruba 800-04 to an Aruba 800, contact your Aruba sales representative to visit the support website.

CHAPTER 2
Installing the Chassis

CAUTION—Installation should be performed by a trained technician.

This chapter covers the following installation topics:

- Precautions to observe during installation
- Requirements for Alcatel Wireless LAN Switch components and rack mounting gear
- Selecting a proper environment for the Alcatel Wireless LAN Switch
- Mounting the Alcatel Wireless LAN Switch in a rack
- Connecting power to the Alcatel Wireless LAN Switch

Pre-Installation Checklist

During installation, you will need the following:

- ☐ Aruba 800 Series Mobility Controller chassis
- ☐ Two mounting brackets (included)
- ☐ Six 6-32 flat head screws (included)
- ☐ Four 12-24 screws (included) or screws as appropriate for your rack
- ☐ Aruba power cord rated to at least 10 A with IEC320 connector (included)
- ☐ Phillips or cross-head screwdriver
- ☐ 19-inch equipment rack, or equivalent
- ☐ 1U rack space with 10 cm (4 inches) clearance to the left and right of the rack
- ☐ Electrical power: 90~132/180~264 VAC, 50 to 60 Hz, 3.5/2.0 A
- ☐ Cool, non-condensing air 0 to 40 °C (32 to 104 °F). May require air conditioning
- ☐ Another person to help position the switch
- ☐ Console terminal (or computer running emulation software) with RJ-45 or DB-9 serial port
- ☐ RS-232 serial cable with RJ-45 male connectors (straight-through Ethernet patch cable)

- ☐ Aruba serial adapter (included) if connecting to the console with DB-9

Precautions

CAUTION—Hazardous energy is always present while the Aruba 800 Series Mobility Controller is plugged into an electrical outlet. Remove all rings, jewelry, and other potentially conductive material before working with this product.

Never insert foreign objects into the chassis or any other component, even when the Alcatel Wireless LAN Switch is unpowered or unplugged.

Main power is fully disconnected from the Alcatel Wireless LAN Switch by unplugging the power cord from the power outlet. For safety reasons, verify the power outlet and plug are within easy reach of the operator.

Do not handle electrical cables which are not insulated. This includes any network cables.

To minimize electrical hazard, keep water and other fluids away from the product.

Comply with electrical grounding standards during all phases of installation and operation of the product. Do not allow the Alcatel Wireless LAN Switch chassis, network ports, power source, or mounting brackets to contact any device, cable, object, or person attached to a different electrical ground. Also, never connect the device to external storm grounding sources.

Installation or removal of the chassis must be performed in a static-free environment. The proper use of anti-static body straps and mats is strongly recommended.

Do not ship or store this product near strong electromagnetic, electrostatic, magnetic, or radioactive fields.

Do not disassemble the chassis. This product has no internal serviceable parts. When service or repair is needed, see "Contacting Aruba Wireless Networks" on page xi.

Requirements

Rack Mounting Kit

Using the included rack mounting kit, you can mount the Alcatel Wireless LAN Switch in a standard 19-inch network equipment rack. The rack mounting kit contains the following parts:

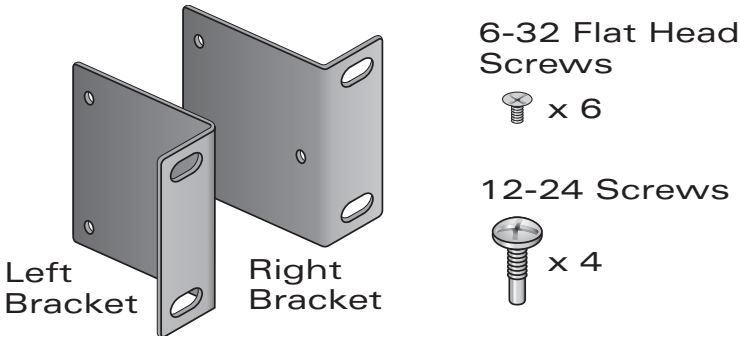


FIGURE 2-1 Rack Mounting Kit

NOTE—The four 12-24 screws are intended for securing the switch to the rack. Some racks require different screws which are not included. Make sure that you have the correct screws or fasteners for your rack system before attempting to mount the switch.

Selecting a Location

The Alcatel Wireless LAN Switch, like other network and computing devices, requires an "electronics friendly" environment.

Reliable power

Make sure that your electrical outlet is compatible with the Alcatel Wireless LAN Switch. The switch power input is auto-ranging and accepts 90~132/180~264 VAC, 50 to 60 Hz, 3.5/2.0 A.

The power cords must be rated to 10 A and conform to grounded electrical standards in the country where the product is operated.

Use of a power line conditioner or Uninterruptible Power Supply (UPS) can decrease or mitigate problems caused by power service fluctuations. Make sure that the output of any power shaping device is compatible with the Alcatel Wireless LAN Switch power supply.

Cool, non-condensing ventilation

For proper operation, the Alcatel Wireless LAN Switch requires an environment with an ambient air temperature between 0 to 40 °C (32 to 104 °F). Humidity must be kept at non-condensing levels between 5 and 95%.

Where a large number of electrical devices are working in the same area, additional air conditioning or air circulation equipment may be required.

Ample space

For proper air circulation, leave at least 10 cm (4 inches) clearance for the vents on the left and right of the chassis.

Leave additional space in front and back of the chassis to access power cords, network cables, and indicator LEDs.

Limited electromagnetic interference

For best operation, keep the Alcatel Wireless LAN Switch and all cords and cables at least 0.7 meters (2 feet) from fluorescent lighting fixtures, and 2 meters (6 feet) from photocopiers, radio transmitters, electric generators, and other sources of strong electromagnetic interference.

Mounting the Chassis

1. Make sure that your rack environment meets requirements (see "Selecting a Location" on page 7).
2. Attach the rack mounting brackets to the switch chassis as shown in Figure 2-2.

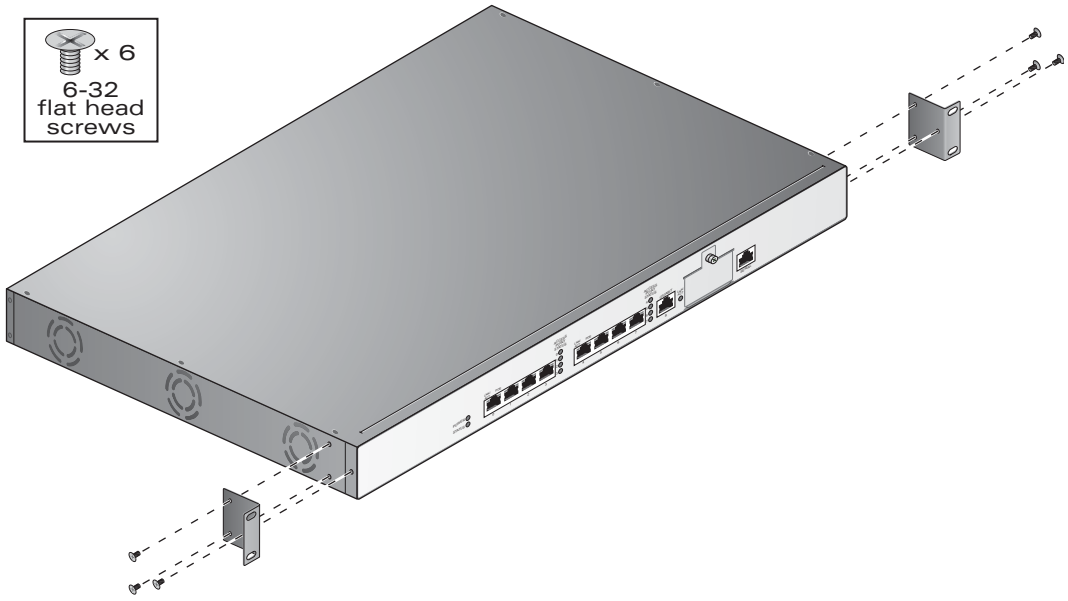


FIGURE 2-2 Attaching the Rack Mounting Brackets

Orient both brackets so that the narrow flange faces the front. When placed properly, the brackets' screw holes will match the holes on the side of the chassis.

Use a Phillips or cross-head screwdriver to attach each bracket securely with three 6-32 flat head screws (included).

3 Attach the Alcatel Wireless LAN Switch to the rack.

CAUTION—To avoid personal injury or damage to equipment, get help for lifting and positioning the Alcatel Wireless LAN Switch. Also, do not install the Alcatel Wireless LAN Switch in any fashion where instability or uneven mechanical loading may occur.

NOTE—For proper operation, the Alcatel Wireless LAN Switch requires an ambient air temperature between 0 to 40 °C (32 to 104 °F). Make sure your rack environment is in compliance.

Position the switch chassis in the equipment rack and align the brackets' mounting holes with the corresponding holes in your rack frame.

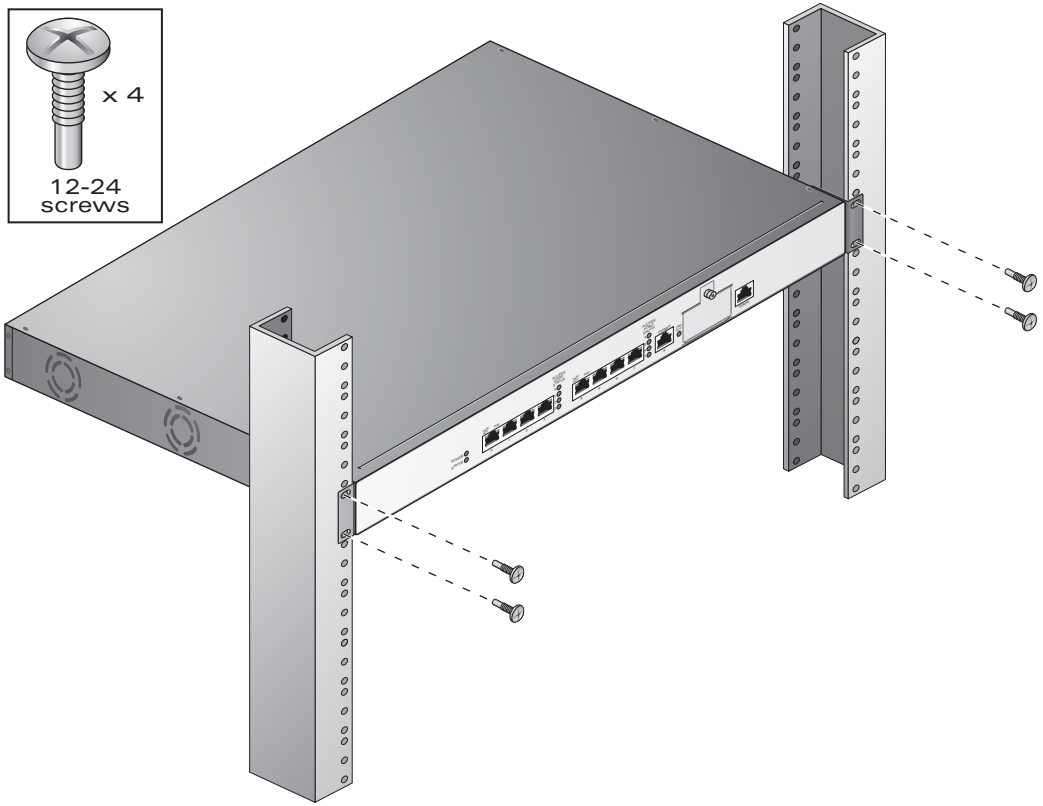


FIGURE 2-3 Mounting the Alcatel Wireless LAN Switch

Use a Phillips or cross-head screwdriver to secure the switch to the rack with two 12-24 screws (included) for each mounting bracket.

NOTE—Some cabinets require different screws which are not included. Make sure that you use the correct screws or fasteners for your rack system.

4 Adhere to clearance requirements.

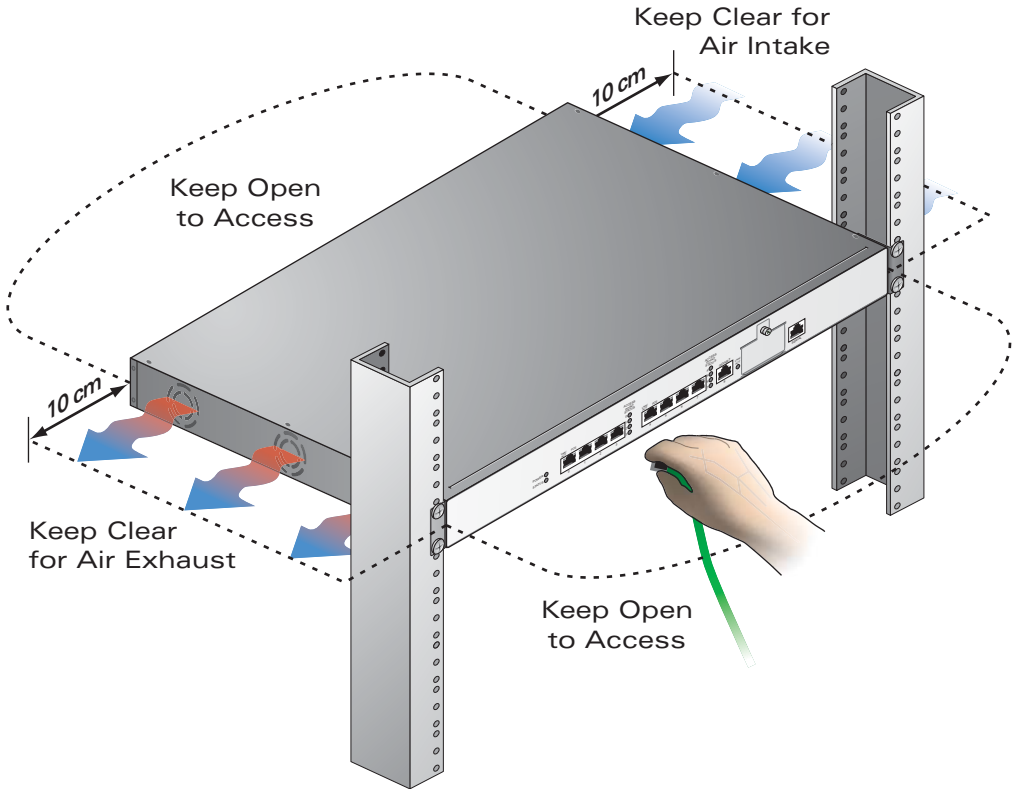


FIGURE 2-4 "Keep Clear" Zones

For proper air circulation, leave at least 10 cm (4 inches) clearance for the vents on the left and right of the chassis.

Leave additional space in front and back of the chassis to access power cords, network cables, and indicator LEDs.

Connecting Power

CAUTION—This procedure should be performed by a trained technician.

1. Make sure you understand the procedure and all precautions.

   Before beginning, read the entire procedure. Make sure you understand all the precautions in these steps as well as those on page 6.

2. Make sure that your site's electrical system is compatible with the switch.

   The switch power input is auto-ranging and accepts 90~132/180~264 VAC, 50 to 60 Hz, 3.5/2.0 A.

   NOTE—Use of a power line conditioner or Uninterruptible Power Supply (UPS) can decrease or mitigate problems caused by power service fluctuations. Make sure that the output of any power shaping device is compatible with the Alcatel Wireless LAN Switch power supplies.

3. Make sure that the switch power supply can handle the POE devices.

   The total power drawn by all connected Power Over Ethernet (POE) devices must not exceed 100 W total. For details, see "POE Power Requirements" on page 15.

4. Attach the power cord to the power input socket at the back of the switch.

   Plug an appropriate power cord into the power input socket. Use the included power cord if it is compatible with your electrical outlet. Otherwise, replace the power cord with the type appropriate for your country. The power input socket accepts a power cord with a standard IEC320 connector.

   CAUTION—For proper safety and performance, the power cord must be rated to 10 A and conform to grounded electrical standards in the country where the product is operated.

5. Attach the power cord to a proper electrical outlet.

   Once power is connected, the switch will automatically turn on and you can perform the power-on test (see page 13).

CHAPTER 3
Verifying the Installation

Once the Alcatel Wireless LAN Switch is physically installed, run the following power-on test:

1. Check for the proper power indicators.

   Immediately upon power up, you should observe the following:

   - The system Power LED lights solid green
   - The system Status LED is initially off while booting

2. Check the fans to verify they are working.

   You should be able to feel significant airflow blowing from the chassis vents at each of the three fan positions.

CAUTION—If *one or more* fans do not work, immediately shut down and replace the Alcatel Wireless LAN Switch.

3. Check for the appropriate operation indicators.

   Once the system has successfully booted, you should observe the following:

   - The system Power LED is still lit solid green.
   - The system Status LED is solid green.

   NOTE—For more information on LED behavior, see Item 1 on page 2.

4. Once the system has passed the initial power-up test:
   - Connect appropriate network cables (see Appendix B on page 17 for port and cable information).
5. You are now ready to perform the initial setup as described in the *Aruba Quick Start Guide* (which is included in the Accessory Kit).

APPENDIX A
Power Management

Use this worksheet to determine the power required by your Alcatel Wireless LAN Switch. Use a separate copy for each system deployed in your network.

System and Location

Name of Alcatel Wireless LAN Switch _____ Location _____

POE Power Requirements

Determine the power output required by switch ports that supply Power Over Ethernet (POE):

TABLE A-1 Aruba 800 Series Power Requirements

Component Name	Power Rating	x	Number of Units	=	Power Subtotal
Each Aruba AP drawing POE	10 W	x		=	
Each Cisco 1200 AP drawing POE	12 W	x		=	
Each other Access Point drawing POE	W	x		=	
			Total POE power required in Watts:		

Make sure that the total POE power required ***does not exceed*** **100 W**.

NOTE—Recalculate the worksheet numbers whenever devices using POE are connected to or disconnected from the network ports.

APPENDIX B
Ports

The Aruba 800 Series Mobility Controller has a number of different ports, each with their own purpose:

Eight Fast Ethernet (FE) ports

Used for connecting to Access Points (APs) and wired LAN segments. These 10/100 Mbps FE ports aggregate and route traffic under the direction of the switch's internal software. These ports can also provide power and serial connectivity to compatible devices.

One Gigabit Ethernet (GE) port

Used for high-bandwidth 10/100/1000 Mbps GE uplink between the Alcatel Wireless LAN Switch and the wired LAN. Depending on the model, one copper or optical interface is available.

One Serial Console port

Used for connecting a local configuration and management console.

This chapter describes the general features and physical characteristics of the various ports and details their compatible cables and connectors.

FE Network Ports

The Alcatel Wireless LAN Switch has eight 10/100 Mbps Fast Ethernet (FE) network ports.

The FE ports are used for connecting the switch to wireless Access Points (APs) and wired LAN segments. These ports can also provide power and serial connectivity to compatible devices. All FE ports automatically sense and negotiate speed, duplex, and MDI/MDX settings.

Serial & Power Over Ethernet

Each FE port supports RS-232 Serial communications and IEEE 802.3af Power Over Ethernet (SPOE).

When a compatible Power Over Ethernet (POE) device (such as the Aruba AP) is connected to a network port, the port can provide operating power to that device through the connected Ethernet cable. This allows APs to be installed in areas where electrical outlets are unavailable, undesirable, or not permitted, such as in the plenum and air handling spaces. The switch network ports automatically detect when compatible POE devices are connected and require power.

The network ports also provide serial connectivity over the same Ethernet cable, allowing convenient access to device console interfaces.

Special cables and adapters may be necessary to use SPOE features with some equipment. See material starting on page 20 for port and cable specifications.

Physical Description & LEDs

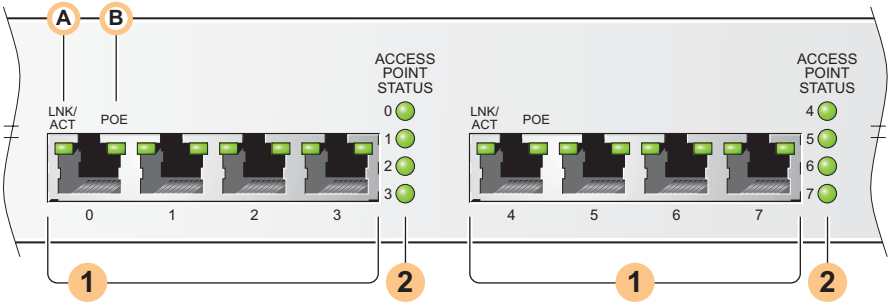


FIGURE B-1 Aruba 800 Series FE Network Ports

1 Eight FE Network Ports

These ports are used to connect APs and wired LAN segments to the Alcatel Wireless LAN Switch. These ports provide 10/100 Mbps Fast Ethernet connectivity, and in some cases, power and serial connectivity as well. All FE ports automatically sense and negotiate speed, duplex, and MDI/MDX settings. See material starting on page 20 for port and cable specifications.

A LNK/ACT LED

Each FE port has its own LNK/ACT LED, located at the left side of the port. During operation, these LEDs provide the following status information:

TABLE B-1 FE LNK/ACT LED

Status	Description
Off	No Ethernet link on the port.
Green	An Ethernet link has been established on the port, but no data is currently being transmitted or received.
Flashing Green	The port is transmitting or receiving data. The flashing rate is proportional to your network activity.

B POE LED

Each FE port has its own POE LED, located at the right side of the port. This LED provides the following POE status information:

TABLE B-2 FE POE LED

Status	Description
Off	The port is disabled or the attached device has not requested power. POE is not being provided by the port.
Green	POE is being provided to the attached device.
Amber	The attached device has requested power, but POE is not being provided by the port.

2 Access Point Status LEDs

Each LED represents the status of APs connected to a specific port on the switch. During operation, the LEDs provide the following information:

TABLE B-3 AP Status LED

Status	Description
Red (solid)	An AP on this port has failed (highest precedence).
Red (flashing)	An air monitor on this port has detected an unsecured AP. The AP is attached to your network but is not listed in the switch security policies. If security policies are enabled, clients are not granted access to your network through the unsecured AP.
Green (flashing)	An air monitor on this port has detected interference. The interfering device (AP or other radio source) has been detected by your valid APs, but has no wired presence on your network.
Amber (solid)	Load balancing is enabled on this port or an AP has reached the maximum number of clients it is configured to support.
Green (solid)	All detected APs on this port are operating as expected.
Off	No AP is detected on the port (lowest precedence).

The LED states in Table B-3 are listed in order of precedence (highest to lowest). If more than one AP is connected to the port, the state with the highest precedence is displayed.

Pin Outs

The RJ-45 female connector pin-outs are shown in Figure B-2 :

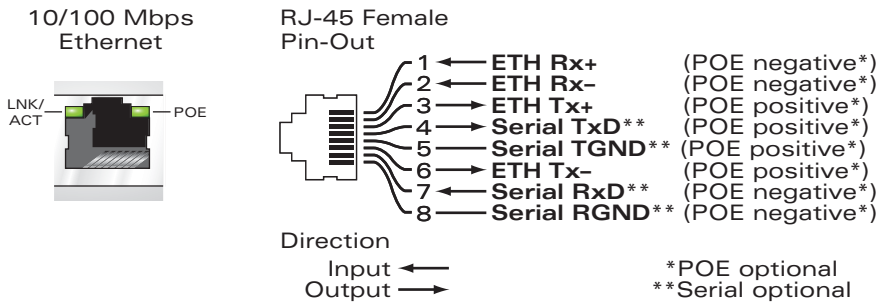


FIGURE B-2 FE Network Port Pin-outs

Cables

The type of cable required for each port depends on the device being connected:

- **Direct connection to a SPOE compatible device**

  This requires an 8-conductor Category 5 UTP Ethernet cable with an RJ-45 male connector. A straight-through cable is required to preserve POE voltage polarity.

  The port should be connected to the intended device either directly or using a SPOE adapter with no intervening hubs, routers, switches, or other network equipment.

  Aruba SPOE adapters separate the serial and FE portions of the cable and route them to their individual ports on the connected device. There are two adapter models:

  - CA-SPOE-ADAPT-1 adapts the Ethernet cable for DB-9 serial and RJ-45 FE devices.
  - CA-SPOE-ADAPT-2 adapts the Ethernet cable for RJ-45 serial and RJ-45 FE devices.

  The Aruba SPOE adapters are compatible with the following APs:

TABLE B-4 Aruba SPOE Adapter Compatibility

AP Make and Model	POE	Serial	Aruba SPOE Adapter
Aruba APs	Yes	Yes	CA-SPOE-ADAPT-1
Cisco 340	No	Yes	CA-SPOE-ADAPT-1
Cisco 350	Yes	Yes	CA-SPOE-ADAPT-1
Cisco 1100	Yes	No	CA-SPOE-ADAPT-1
Cisco 1200	Yes	Yes	CA-SPOE-ADAPT-2
SMC EZ Connect 2755W	No	Yes	CA-SPOE-ADAPT-1

- **Direct connection to a POE compatible device**

  This requires a 4- or 8-conductor Category 5 UTP Ethernet cable with an RJ-45 male connector. A straight-through cable is required to preserve POE voltage polarity.

  For POE, the port should be connected directly to the intended device with no intervening hubs, routers, switches, or other network equipment.

- **Connection to a regular 10/100 Mbps Ethernet segment**

  This requires a 4- or 8-conductor Category 5 UTP Ethernet cable with an RJ-45 male connector. The port detects MDI/MDX and automatically adjusts for straight-through or crossover cables.

The maximum length for FE cables is 100 meters (325 feet).

For cables that run through plenums or air-handling spaces as described in NEC (2002) Article 300.22(C), the cable should be suitable under NEC Article 800.50 and marked accordingly for use in plenums and air-handling spaces with regard to smoke propagation, such as CL2-P, CL3-P, MPP or CMP.

NOTE—Be sure to install cables in accordance with all applicable local regulations and practices.

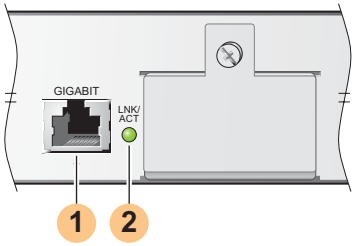
GE Uplink Port

The Alcatel Wireless LAN Switch has one 10/100/1000 Mbps Gigabit Ethernet (GE) port. The GE port provides a high-bandwidth connection between the Alcatel Wireless LAN Switch and the wired LAN. The port automatically senses and negotiates speed, duplex, and MDI/MDX settings.

Physical Description and LEDs

Depending on the option selected at time of purchase, one of the following interfaces is available:

- 1000BASE-T copper connector (standard model HW-800-CHAS-SPOE-T)



- 1000BASE-SX fiber-optic connector (optional model HW-800-CHAS-SPOE-SX)

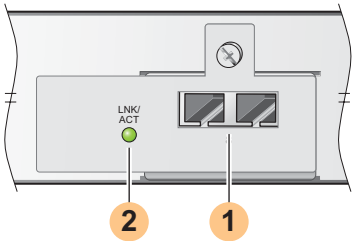


FIGURE B-3 Aruba 800 Gigabit Ethernet Ports

NOTE—The Gigabit interface is not user-replaceable. Do not remove the port cover plate.

1 Gigabit Ethernet port (copper or fiber-optic, depending on the option)
2 LNK/ACT LED

TABLE B-5 GE LNK/ACT LED

Status	Description
Off	No Ethernet link on the port.
Green	An Ethernet link has been established on the port, but no data is currently being transmitted or received.
Flashing Green	The port is transmitting or receiving data. The flashing rate is proportional to your network activity.

Cables

Copper Interface

The following table lists the cable characteristics for the 1000BASE-T GE uplink port:

TABLE B-6 Copper GE Cable Characteristics

Item	Specification
Cable	Category 5 UTP
Connector	RJ-45
Range	Up to 100 m (325 feet)

Fiber-Optic Interface

The 1000BASE-SX GE uplink port uses a shortwave 850 nm laser. The following table lists the cable characteristics for the port:

TABLE B-7 Fiber-Optic GE Cable Characteristics

Item	Specification
Cable	62.5 µm multimode fiber
Connector	SC-type fiber optic
Range	Up to 260 m (850 feet)
Cable	50 µm multimode fiber
Connector	SC-type fiber optic
Range	Up to 550 m (1800 feet)

CAUTION—The fiber-optic interface uses a laser transceiver. Use of controls or adjustments of performance or procedures other than those specified herein may result in hazardous radiation exposure.

Serial Console Port

The serial console port is located on the front panel of the Alcatel Wireless LAN Switch. This port is for connecting a local management console and can be used to access the text-based Command-Line Interface (CLI) to configure, manage, and troubleshoot the Alcatel Wireless LAN Switch.

CAUTION—Do not connect Access Points to the serial console port. The serial port is designed to connect to RS-232-only devices. Non-RS-232 devices such as Access Points will cause the Switch to fail and can cause damage.

See the *Aruba ArubaOS User's Guide* for using the features available through this port.

Port & Adapter Pin Outs

The serial console port's RJ-45 female connector accepts an RS-232 serial cable with a male connector. Pin-outs are shown in Figure B-4 :

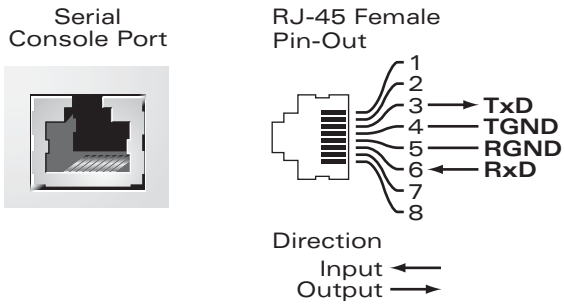


FIGURE B-4 Serial Port

To connect the required RS-232 serial cable to a terminal with a DB-9 male port, use the included adapter. Pin-outs are shown in Figure B-5 :

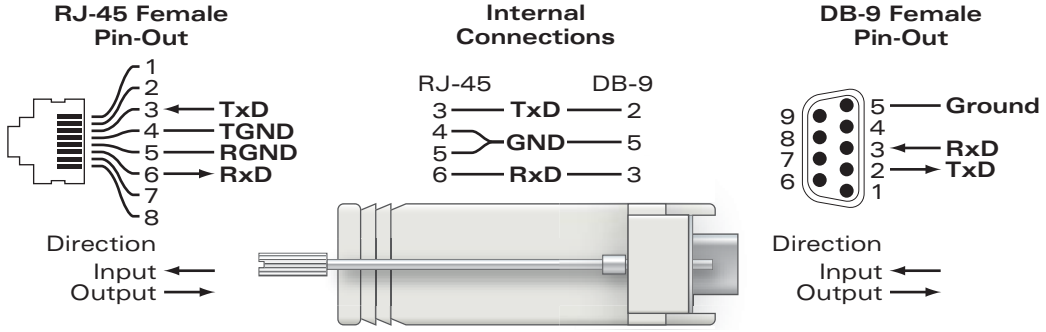


FIGURE B-5 Serial Port Adapter

Communications Settings

TABLE B-8 Console Terminal Settings

Baud Rate	Data Bits	Parity	Stop Bits	Flow Control
9600	8	None	1	None

APPENDIX C
Specifications

Physical

TABLE C-1 Physical Specifications

Item	Specification
Size	Height 4.45 cm (1.75 inches) Width 44.2 cm (17.4 inches) Depth 33.3 cm (13.1 inches)
Weight	4.5 KG (10 lbs.)

Environment

TABLE C-2 Environmental Specifications

Item	Specification
Temperature	Operating: 0 to 40 °C (32 to 104 °F) Storage: 0 to 50 °C (32 to 122 °F)
Humidity	5% to 95% (non-condensing)

Operation

TABLE C-3 Operational Specifications

Item	Specification
Power	90~132/180~264 VAC, 50-60 Hz, 3.5/2.0 A
Network Management	Command-Line Interface and HTML Web-browser Interface
Standards	IEEE 802.1x, IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T (model HW-800-CHAS-SPOE-T), IEEE 802.3z 1000BASE-SX (model HW-800-CHAS-SPOE-SX)

Certifications

TABLE C-4 Certifications

Item	Specification
Electromagnetic Compatibility	FCC Part 15 Class A CE ICES-003 Class A VCCI Class A (Japan) CE The CE approval mark on back of the product indicates that it meets European Directive 89/336/EEC EN 55022 Class A (CISPR 22 Class A), EN55024, EN 61000-3-2, EN 61000-3-3 AS/NZS 3548 Class A
Safety	UL60950, CAN/CSA C22.2 No 60950, IEC/EN60950 Low Voltage Directive (LVD) 73/23/EEC 21 CFR Chapter 1, Subchapter J, Part 1040.10 (Laser Safety), IEC/EN 60825-1, EN 60825-2 (Laser Safety)